WHAT IS CLAIMED IS:

1. A separating apparatus for separating a sample by a fluid, comprising:

a holding portion for holding a sample having a separation layer inside;

a nozzle for injecting a fluid to the separation layer of the sample held by said holding portion;

a fluid supply portion for supplying the fluid to said nozzle,

wherein said fluid supply portion suppresses a variation in pressure of the fluid to be supplied to said nozzle within a predetermined range during separation processing so that the fluid is ejected from said nozzle at substantially constant pressure.

2. The apparatus according to claim 1, wherein said fluid supply portion suppresses the variation in pressure of the fluid to be supplied to said nozzle within ±10% of a target pressure during the separation processing.

3. The apparatus according to claim 1, wherein said fluid supply portion comprises a servo-driven pump and supplies the fluid to said nozzle from said servo-driven pump.

4. The apparatus according to claim 1, further comprising a rotational drive portion for rotating the sample about an axis perpendicular to the separation layer by rotating said holding portion.

5. The apparatus according to claim 1, further comprising an operation mechanism for changing a position where the fluid is injected from said nozzle to the sample along with progress of the separation processing.

6. The apparatus according to claim 5, wherein said operation mechanism changes the position where the fluid is injected to the separation layer of the

sample gradually or stepwise from a peripheral portion to a central portion of the separation layer along with progress of the separation processing.

7. The apparatus according to claim 1, wherein the sample has, outside the separation layer, a concave portion recessed from a side surface.

8. The apparatus according to claim 1, wherein the separation layer is a fragile layer.

9. The apparatus according to claim 1, wherein the separation layer is a layer formed by anodization.

10. The apparatus according to claim 1, wherein the separation layer is a layer formed by ion implantation.

11. A separating method of separating a sample by a fluid, wherein a sample having a separation layer inside is separated at the separation layer while injecting a fluid whose variation in pressure is suppressed within a predetermined range to the separation layer of the sample.

12. The method according to claim 11, wherein the predetermined range is ±10% of a target pressure.

13. The method according to claim 11, wherein the pressure of the fluid is servo-controlled.

14. The method according to claim 11, wherein the sample is separated while being rotated about an axis perpendicular to the separation layer.

15. The method according to claim 11, wherein the sample is separated while changing a position where the fluid is injected to the sample along with progress of separation processing.

16. The method according to claim 11, wherein the sample is separated while changing the position where the fluid is injected to the separation layer of the sample gradually or stepwise from a peripheral portion to a central portion of the separation layer along with progress of the separation processing.

17. The method according to claim 11, wherein the sample has, outside the separation layer, a concave portion recessed from a side surface.

18. The method according to claim 11, wherein the separation layer is a fragile layer.

19. The method according to claim 11, wherein the separation layer is a layer formed by anodization.

20. The method according to claim 11, wherein the separation layer is a layer formed by ion implantation.

21. A transfer method of transferring a transfer layer on a surface of a first member to a second member, comprising:

the preparation step of preparing a composite member by bringing the first member having a separation layer inside and the transfer layer on the separation layer into tight contact with the second member; and

the step of separating the composite member at the separation layer while injecting a fluid, maintained at substantially constant pressure by suppressing variation in the pressure within a predetermined range, to the separation layer of the composite member, thereby transferring the transfer layer of the first member to the second member.

22. A substrate manufacturing method comprising:

the preparation step of preparing a bonded substrate stack by bonding a first substrate having a separation layer inside and a transfer layer on the separation layer to a second substrate; and

the separation step of separating the bonded substrate stack at the separation layer while injecting a fluid, maintained at substantially constant pressure by suppressing variation in the pressure within a predetermined range, to the separation layer of the bonded substrate stack.

23. The method according to claim 22, wherein the predetermined range is ±10% of a target pressure.

24. The method according to claim 22, wherein in the separation step, the pressure of the fluid is servo-controlled.

25. The method according to claim 22, wherein in the separation step, the bonded substrate stack is separated while being rotated about an axis perpendicular to the separation layer.

26. The method according to claim 22, wherein in the separation step, the bonded substrate stack is separated while changing a position where the fluid is injected to the bonded substrate stack along with progress of separation processing.

27. The method according to claim 22, wherein in the separation step, the bonded substrate stack is separated while changing the position where the fluid is injected to the separation layer of the bonded substrate stack gradually or stepwise from a peripheral portion to a central portion of the separation layer along with progress of the separation processing.

28. The method according to claim 22, wherein the separation layer is a fragile layer.

29. The method according to claim 22, wherein the separation layer is a layer formed by anodization.

30. The method according to claim 22, wherein the separation layer is a layer formed by ion implantation.

31. The method according to claim 22, wherein the transfer layer includes a single-crystal Si layer.

32. The method according to claim 31, wherein the transfer layer has, in addition to the single-crystal Si layer, an insulating layer on the single-crystal Si layer.

33. A semiconductor device manufacturing method comprising:

the step of preparing an SOI substrate using the substrate manufacturing method of claim 22; and

the step of element-isolating an SOI layer of the SOI substrate and forming a transistor on the element-isolated SOI layer.

34. The method according to claim 33, wherein the transistor is a partial depletion type FET.

35. The method according to claim 33, wherein the transistor is a complete depletion type FET.

36. A semiconductor device having a transistor, which is obtained by the semiconductor device manufacturing method of claim 33.